



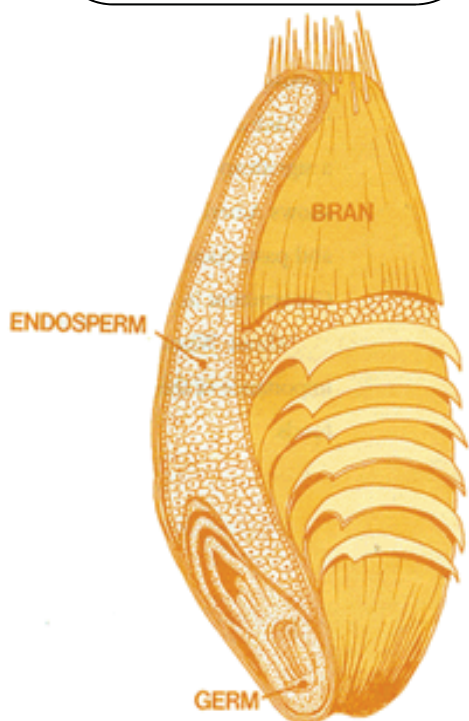
Diagram of a Kernel Reference Sheet

For teachers describing the Wheat Kernel.

Bran - About 14 percent of the kernel weight. The bran is included in whole wheat flour and is also available separately. The bran contains a small amount of protein, large quantities of the three major B vitamins, trace minerals and dietary fiber -- primarily insoluble.

Endosperm - About 83 percent of the kernel weight and the source of white flour. The endosperm contains the greatest share of protein, carbohydrates and iron, as well as the major B vitamins such as riboflavin, niacin, thiamin and iron. It is also a source of soluble fiber.

Germ - About 2.5 percent of the kernel weight. The germ is the embryo or sprouting section of the seed, often separated from flour in milling because the fat content (10 percent) limits shelf life. The germ contains minimal quantities of high quality protein and a greater share of B complex vitamins and trace minerals. Wheat germ can be purchased separately and is included in whole wheat flour.



The Kernel of Wheat

Sometimes called the wheat berry, the kernel is the seed from which the wheat plant grows. Each tiny seed contains three distinct parts that are separated during the milling process to produce flour. The kernel of wheat is a storehouse of nutrients needed and used by mankind.

Not all wheat is alike.

Botanically, there are more than 30,000 varieties of wheat which fall into six major classes that are grown in the United States. The six classes are based on planting and harvesting dates, as well as hardness, color and shape of the kernels. The classes are hard red spring, hard red winter, soft red winter, hard white wheat, soft white wheat and durum. Hard wheat is higher in protein and gluten and are, therefore, usually used for yeast breads. Soft wheat makes very tender pastries, cakes, cookies, flatbreads, crackers and muffins. Soft and hard wheat is often blended to make all-purpose flour. The hardest wheat, durum, is primarily used for making pasta.

When it comes to bread...What is the difference between enriched, whole grain, and wheat?

Enriched Bread is made from enriched white flour, which comes from the endosperm of the wheat kernel and is fortified with iron, B vitamins and, in some cases, calcium. Enriched white bread has more than twice the amount of folic acid as whole-wheat bread. Whole wheat bread is made from whole grain flour, or the entire wheat kernel and naturally contains fiber, antioxidants, and phytoestrogens, which may help to reduce the risk of heart disease and some cancers. Wheat bread is made from a combination of white and whole grain flour and provides a combination of their benefits. All three kinds of bread offer a wide range of nutrients and complex carbohydrates and help regulate the appetite.

Reference: Montana Wheat and Barley Committee Web Site: http://wbc.agr.mt.gov/Consumers/diagram_kernel.html

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